Maryland Historical Trust

Maryland Inventory of Historic Properties number: M: 13-57

Name: 15054/MD355 (Frederick Rd.) over Little Seneca Crk.

The bridge referenced herein was inventoried by the Maryland State Highway Administration as part of the Historic Bridge Inventory, and SHA provided the Trust with eligibility determinations in February 2001. The Trust accepted the Historic Bridge Inventory on April 3, 2001. The bridge received the following determination of eligibility.

MARYLAND HISTORICAL TRUST

Eligibility Recommended _____ Eligibility Not Recommended __X____

Criteria: ____A ____B ____C ____D Considerations: ___A ___B ___C ___D ___E ___F ___G __None

Comments:_____

_____

_____

Reviewer, OPS:_Anne E. Bruder_____ Date:__3 April 2001____

Reviewer, NR Program:__Peter E. Kurtze_____ Date:__3 April 2001____

MARYLAND INVENTORY OF HISTORIC BRIDGES
HISTORIC BRIDGE INVENTORY
MARYLAND STATE HIGHWAY ADMINISTRATION/
MARYLAND HISTORICAL TRUST

MHT No. M:13-57

SHA Bridge No. 15054 Bridge name MD 355 (Frederick Road) over Little Seneca Creek

LOCATION:
Street/Road name and number [facility carried] MD 355 (Frederick Road)

City/town Clarksburg Vicinity X

County Montgomery

This bridge projects over: Road____ Railway_____ Water X Land ____

Ownership: State X County _____ Municipal _____ Other _____

HISTORIC STATUS:
Is the bridge located within a designated historic district? Yes _____ No X
National Register-listed district ____ National Register-determined-eligible district __
Locally-designated district _____ Other _____

Name of district _____

BRIDGE TYPE:
Timber Bridge _____:
Beam Bridge _____ Truss -Covered ___ Trestle ____ Timber-And-Concrete ___

Stone Arch Bridge _____

Metal Truss Bridge _____

Movable Bridge _____:
Swing _____ Bascule Single Leaf __ Bascule Multiple Leaf _____
Vertical Lift _____ Retractile_____ Pontoon _____

Metal Girder_____:
Rolled Girder _____ Rolled Girder Concrete Encased _____
Plate Girder _____ Plate Girder Concrete Encased _____

Metal Suspension _____

Metal Arch _____

Metal Cantilever _____

Concrete X:
Concrete Arch_____ Concrete Slab ____ Concrete Beam X Rigid Frame _____
Other _____ Type Name _____

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DESCRIPTION:
Setting: Urban _____ **Small town** _____ **Rural** ___X___

Describe Setting:

Bridge No. 15054 carries MD 355 (Frederick Road) over Little Seneca Creek in Montgomery County. MD 355 runs north-south and Little Seneca Creek flows east to west. The bridge is located in the Clarkburg vicinity, and is surrounded by open space and woodland.

Describe Superstructure and Substructure:

Bridge No. 15054 is a single-span, 2-lane concrete T-beam bridge. The bridge was originally built in 1922, and the parapets were repaired in the early 1990s. The structure is 25 feet long and has a clear roadway width of 24 feet; there are no sidewalks. The superstructure consists of five (5) beams which support a concrete deck and solid parapets. The beams measure 3 feet x 1 foot, 6 inches and are spaced approximately 5 feet apart. The concrete deck, an integral part of the T-beams, is 8 inches thick and it has a 13 inches thick bituminous wearing surface. The structure has solid parapets which were rebuilt and repaired in the early 1990s. An unusually thick layer of asphalt above the deck had resulted in the inadequate height of the parapet wall. The height of the parapets was increased in the 1990s alteration. The east parapet was replaced with a solid concrete parapet. A portion of the original parapet remains on the west elevation. The original parapet has raised and recessed panels and has been topped by solid concrete to increase its height. The roadway side of the parapet has been parged in concrete. W-section guard rails located along the roadway approaches continue across the bridge and are bolted through the parapet walls. The substructure consists of two (2) concrete abutments and four (4) flared concrete wing walls. The bridge is not currently posted, and has a sufficiency rating of 63.7.

According to the 1996 inspection report, this structure was in fair condition with cracking, spalling and efflorescence. The bituminous concrete is hollow sounding from 4 feet inward from the parapet walls with some irregular cracking. The exterior girders have open horizontal and longitudinal cracking, spalling and exposed, rusting reinforcement bars. The interior girders have patches, scaling, delamination and discoloration. The abutments have heavy spalling of the exposed footing, with vertical cracking and efflorescence. The east wing walls have irregular cracks, hollow sounding areas and efflorescence. The southwest wing wall has a deep spall next to the abutment.

Discuss Major Alterations:

The bridge parapets walls were altered in the early 1990s. The east parapet was replaced with a solid concrete parapet. A portion of the original parapet remains on the west elevation. The east parapet has been topped by solid concrete to increase its height. The roadway side of the east parapet has been parged in concrete.

HISTORY:

WHEN was the bridge built: 1922
This date is: Actual ___X___ **Estimated** _____
Source of date: Plaque ____ **Design plans** ___ **County bridge files/inspection form** ____
Other (specify): State Highway Administration bridge files/inspection forms

WHY was the bridge built?

The bridge was constructed in response to the need for a more efficient transportation network and increased load capacity.

WHO was the designer?

Unknown

WHO was the builder?

Unknown

WHY was the bridge altered?

The bridge was altered to correct functional or structural deficiencies.

Was this bridge built as part of an organized bridge-building campaign?

There is no evidence that the bridge was built as part of an organized bridge building campaign.

SURVEYOR/HISTORIAN ANALYSIS:

This bridge may have National Register significance for its association with:
A - Events _____ B- Person _____
C- Engineering/architectural character _____

The bridge does not have National Register significance.

Was the bridge constructed in response to significant events in Maryland or local history?

The earliest concrete beam bridges in the nation were deck girder spans that featured concrete slabs supported by a series of longitudinal concrete beams. This method of construction was conceptually quite similar to the traditional timber beam bridge which had found such widespread use both in Europe and in America. Developed early in the twentieth century, deck girder spans continued to be widely used in 1920 when noted bridge engineer Milo Ketchum wrote *The Design of Highway Bridges of Steel, Timber and Concrete* (Ketchum 1920).

Although visually similar to deck girder bridges, the T-beam span features a series of reinforced concrete beams that are integrated into the concrete slab, forming a monolithic mass appearing in cross section like a series of upper-case "T"s connected at the top. Thaddeus Hyatt is believed to have been the first to come upon the idea of the T-beam when he was studying reinforced concrete in the 1850s, but the first useful T-beam was developed by the Belgian Francois Hennebique at the turn of the present century (Lay 1992:293). The earliest references to T-beam bridges refer to the type as concrete slab and beam construction, a description that does not distinguish the T-beam design from the concrete deck girder. Henry G. Tyrrell was perhaps the first American bridge engineer to use the now standard term "T-beam" in his treatise *Concrete Bridges and Culverts,* published in 1909. Tyrrell commented that "it is permissible and good practice in designing small concrete beams which are united by slabs, to consider the effect of a portion of the floor slab and to proportion the beams as T-beams" (Tyrrell 1909:186).

By 1920, reinforced concrete, T-beam construction had found broad application in standardized bridge design across the United States. In his text, *The Design of Highway Bridges of Steel, Timber and Concrete*, Milo S. Ketchum included drawings of standard T-beam spans recommended by the U.S. Bureau of Public Roads as well as drawings of T-beam bridges built by state highway departments in Ohio, Michigan, Illinois, and Massachusetts (Ketchum 1920). By the 1930s the T-beam bridge was widely built in Maryland and Virginia.

Maryland's roads and bridge improvement programs mirrored economic cycles. The first road improvement of the State Roads Commission was a 7 year program, starting with the Commission's establishment in 1908 and ending in 1915. Due to World War I, the period from 1916-1920 was one of relative inactivity; only roads of first priority were built. Truck traffic resulting from war related factories and military installations generated new, heavy traffic unanticipated by the builders of the early road system. From 1920-1929, numerous highway improvements occurred in response to the increase in Maryland motor vehicles from 103,000 in 1920 to 320,000 in 1929, with emphasis on the secondary system of feeder roads which moved traffic from the primary roads built before World War I. After World War I, Maryland's bridge system also was appraised as too narrow and structurally inadequate for the increasing traffic , with plans for an expanded bridge program to be handled by the Bridge Division, set up in 1920. In 1920 under Chapter 508 of the Acts of 1920 the State issued a bond of $3,000,000.00 for road construction; the primary purpose of these monies was to meet the state obligations involving the construction of rural post roads. The secondary purpose of these monies was to fund (with an equal sum from the counties) the building of lateral roads. The number of hard surfaced roads on the state system grew from 2000 in 1920 to 3200 in 1930. By 1930, Maryland's primary system had been inadequate to the huge freight trucks and volume of passenger cars in use, with major improvements occurring in the late 1930's. Most improvements to local roads waited until the years after World War I.

In the early years, there was a need to replace the numerous single lane timber bridges. Walter Wilson Crosby, Chief Engineer, stated in 1906, "the general plan has been to replace these [wood bridges] with pipe culverts or concrete bridges and thus forever do away with the further expense of the maintenance of expensive and dangerous wooden structures." Within a few years, readily constructed standardized bridges of concrete were being built throughout the state.

In 1930, the roadway width for all standard plan bridges was increased to 27 feet in order to accommodate the increasing demands of automobile and truck traffic (State Roads Commission 1930). The range of span lengths remained the same, but there were some changes designed to increase the load bearing capacities. The reinforcing bars increased in thickness. Visually, the 1930 design can be distinguished from its predecessors by the pierced concrete railing that was introduced at this time.

In 1933, a new set of standard plans were introduced by the State Roads Commission. This time their preparation was not announced in the Report; new standard plans were by this time nothing special - they had indeed become standard. Once again accommodating the ever-increasing demands of traffic, the roadway was increased, this time to 30 feet. The slab span's reinforcing bars remained the same diameter but were placed closer together to achieve still more load capacity.

When the bridge was built and/or given a major alteration, did it have a significant impact on the growth and development of the area?

There is no evidence that the construction of this bridge had a significant impact on the growth and development of this area.

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Is the bridge located in an area which may be eligible for historic designation and would the bridge add to or detract from the historic/visual character of the potential district?

The bridge is located in an area which does not appear to be eligible for historic designation.

Is the bridge a significant example of its type?

A significant example of a concrete beam bridge should possess character-defining elements of its type, and be readily recognizable as an historic structure from the perspective of the traveler. The integrity of distinctive features visible from the roadway approach, including parapet walls or railings, is important in structures which are common examples of their type. In addition, the structure must be in excellent condition. This bridge, which is lacking the integrity of the parapet walls and has considerable deterioration, is an undistinguished example of a concrete beam bridge.

Does the bridge retain integrity of important elements described in Context Addendum?

The bridge retains the character-defining elements of its type, as defined by the Statewide Historic Bridge Context, including the slab, concrete beams, abutments and wing walls, however some deterioration is evident.

Is the bridge a significant example of the work of a manufacturer, designer, and/or engineer?

This bridge is not a significant example of the work of a manufacturer, designer, and/or engineer.

Should the bridge be given further study before an evaluation of its significance is made?

No further study of this bridge is required to evaluate its significance.

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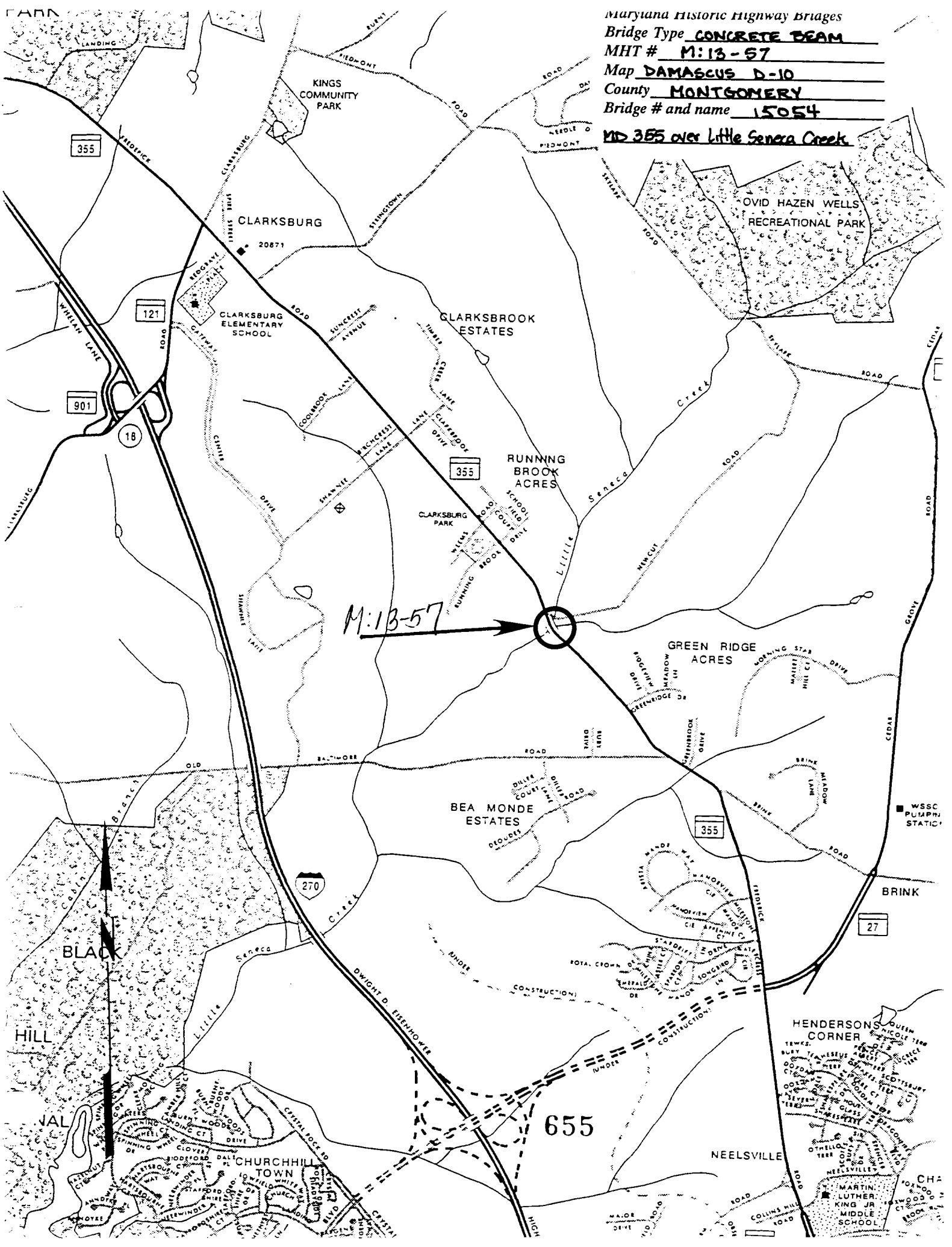
Tyrrell, H. Grattan
1909 *Concrete Bridges and Culverts for Both Railroads and Highways.* The Myron C. Clark Publishing Company, Chicago and New York.

SURVEYOR:

Date bridge recorded 2/25/97
Name of surveyor Caroline Hall/Tim Tamburrino
Organization/Address P.A.C. Spero & Co., 40 W. Chesapeake Avenue, Baltimore, MD 21204
Phone number(410) 296-1685 **FAX number** (410) 296-1670


Maryland Historic Highway Bridges
Bridge Type CONCRETE BEAM
MHT # M:13-57
Map DAMASCUS D-10
County MONTGOMERY
Bridge # and name 15054
MD 355 over Little Seneca Creek
M:13-57
KINGS COMMUNITY PARK
CLARKSBURG
20871
CLARKSBURG ELEMENTARY SCHOOL
CLARKSBROOK ESTATES
OVID HAZEN WELLS RECREATIONAL PARK
RUNNING BROOK ACRES
CLARKSBURG PARK
GREEN RIDGE ACRES
BEA MONDE ESTATES
BRINK
BLACK HILL
CHURCHHILL TOWN
HENDERSONS CORNER
NEELSVILLE
MARTIN LUTHER KING JR MIDDLE SCHOOL
WSSC PUMPING STATION
DWIGHT D. EISENHOWER
CONSTRUCTION
355
121
901
270
27
18
655

1. M 13-57
2. (150SW) MD 355 OVER LITTLE SENECA CREEK
3. MONTGOMERY CO MD
4. TIM TAMBURRINO
5. 3.97
6. MD SHPO
7. EAST ELEVATION
8. 3 OF 5

1. M: 13-57

2. (15054) MD 355 OVER LITTLE SENECA CREEK

3. MONTGOMERY CO MD

4. TIM TAMBURRINO

5. 3.97

6 MD SHPO

7 WEST ELEVATION

8. 4 of 5


WEIGHT
LIMIT
15
TONS

1. M 13-57
2. (15054) MD 355 OVER LITTLE SENECA CREEK
3. MONTGOMERY CO MD
4. TIM TAMBURRINO
5. 3-97
6. MD SHPO
7. SOUTH APPROACH
8. 1 of 5

1 M. 13.57

2. (150SH) MD 355 OVER LITTLE SENECA CREEK

3. MONTGOMERY CO. MD

4 TIM TAMBURRINO

5 3-97

6 MD SHPO

7 NORTH APPROACH

8. 2 of 5


15054

1. M 13-57
2. (15054) MD 355 OVER LITTLE SENECA CREEK
3 MONTGOMERY CO MD
4 TIM TAMBURRINO
5 2-97
6 MD SHPO
7 WEST PARAPET
8 5 of 5